DATE: February 26, 1993

SUBJECT: Assessment of Data Associated with EPA Activity DSX10, Monsanto Research Farm.

1. **Summary:**

The above-referenced data for analysis of VOCs and PCBs were assessed for accuracy, precision, method detection limits, completeness, comparability, and representativeness.

The purpose of this sampling event, as stated in the sampling plan, is "to assess whether groundwater contamination observed during the Screening Site Inspection (SSI) is persistent in the shallow aquifer under the site, or if inadequate well development resulted in concentrations which were not representative of the aquifer conditions.

Although a completeness goal was not identified in the sampling plan, all required sampling locations were sampled and analyzed. Precision, comparability, analytical sensitivity (MDLs), and representativeness appear acceptable. Accuracy for PCB analyses may be questionable.

The samples 001, 002, 003, 004, 005, and 009 did not contain any VOC analytes of interest, however, samples 004, 005 and 005D did contain detectable levels of PCBs.

2. **Accuracy and Precision:**

Overall, the matrix spike/matrix spike duplicate recoveries were within the acceptable limits. Several recoveries exceeded the allowable limits, but this will have a minimal impact on the overall data because the samples were non detects for those analytes whose recoveries were high.

The %RPD between 005 and 005D for the detected amount of PCB 1248 is 24.7%. The overall precision between the matrix spike and matrix spike duplicates were good for the VOCs, however the %RPD for PCB 1016 is 39.57%; this may indicate some loss of precision for PCBs, but likely not enough to compromise data quality.

Low recoveries were reported for the PCB PE samples. Three PCB Aroclors were contained in the PE sample: PCB 1242 (10 µg/L), PCB 1248 (3.5 µg/L), and PCB 1254 (1.6 µg/L). The recoveries for these PCB analytes were: 1242 (6.6 µg/L) (66%), 1248 non detect, and 1254 non detect. This may be due to the common practice of quantitating and reporting only the most prevalent aroclor in a mixture of PCBs. The matrix spike recovery for PCB 1016 was 145% and the matrix spike duplicate recovery was 171%. The matrix spike recovery for PCB 1260 was 109% while the matrix spike duplicate recovery was 135%.

Due to the varying recoveries of the PCB PE and MS/MSDs, a definitive conclusion as to the accuracy of the data cannot formulated. The PE data may indicate a low bias, while the MS/MSD data appears to indicate a high bias.

3. **MDLs and Action Levels:**

The required detection levels per the ASR were met for all analytes of interest. Action levels were specifically stated in the sampling plan, with a detection level of 1 µg/L was required for 1,2-DCE and Trichloroethene and 0.5 µg/L for the PCBs. These detection levels were met for these target analytes.

4. **Comparability:**

The use of standard units, methods for sampling (as described in the Sampling Plan) and analytical methods should result in data which is comparable against other Agency data and against action levels based on those data.

5. **Completeness:**

The data for this activity is complete in LAST. A completeness goal as a percent of the proposed sample amount versus the number of samples analyzed was not stated in the sampling plan. The ASR contained in the sampling plan, indicates eight samples are to be taken. The field sheets provided with the LAST data indicate ten field samples were taken and along with one PE sample were analyzed.

6. **Representativeness:**

The sampling locations identified in the sampling plan were deemed to be representative of the area. Since all designated areas were sampled, properly preserved, and analyzed the analytical results should be considered representative of the site groundwater conditions at the locations sampled.

An examination of the method blank data (900M/901M) associated with these samples indicated the common laboratory contaminants methylene chloride and acetone. This has little impact on the data quality as the associated field samples were non detect for these analytes with the exception of the field blank. The rinsate blank (008F) contained detectable amounts of toluene and chlorobenzene. Again this has minimal impact on the data quality as associated field samples were non detect for these analytes. The LDL VOA trip blank (010F) contained no target analytes of interest.